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COVER STORY

25 Ways to Use Your Smartphone
Physicians share their favorite uses and apps.

By Kim Kiser

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"Sent from my iPhone." Those words are appearing at the end of more and more emails from physicians. And that shouldn't come as a surprise. According to Manhattan Research, a market research firm, 72

percent of U.S. physicians now use smartphones.

The firm predicts that by 2012, a full 81 percent will have them, especially as hospitals and clinics make it possible for physicians to use their phones to access patients' electronic health records and as more apps for reference materials and guidelines become available. With that in mind, we asked physicians in an online survey whether they were carrying smartphones and, if so, how they were using them in practice. The responses we received showed that those who have the devices find themselves increasingly dependent them. (One respondent went so far as to say she would marry her iPhone.)

"The smartphone has been the big game-changer," says Jason Eldrige, M.D., a Mayo Clinic anesthesiologist and pain medicine specialist who answered our survey questions. "It's a convergence device so you no longer have to carry a cell phone and a PDA."

Eldrige and others told us how they're now using their smartphones in practice. Here are some of the things they mentioned.

The Respondents

Peter Bornstein, M.D., a physician with St. Paul Infectious Disease Associates

Stuart Cameron, M.D., a pathologist with Hennepin Faculty Associates

Maria Carrow, M.D., a first-year family medicine resident at Methodist Hospital

Jason Eldrige, M.D., an anesthesiology and pain medicine physician at Mayo Clinic

Heather Hamernick, M.D., a family physician at Parkview Medical Center in New Prague

Amy Keppel, M.D., a family physician with North Memorial Medical Center's Northeast Clinic

Kari Rabie, M.D., a family physician and medical director of the Native American Community Clinic in Minneapolis

Rosei Skipper, M.D., a Mayo Clinic psychiatry resident

Gary Snead, D.O., a St. Cloud pediatrician

Amit Sood, M.D., a Mayo Clinic integrative medicine physician

Therese Zink, M.D., a family physician and associate director of the University of Minnesota's Rural Physician Associate Program Alexander Zubkov, M.D., a neurologist who practices at Fairview

1. Replace your pager. Family physician Heather Hamernick has been pager-free since graduating from residency. "We don't have pagers in our clinic at all, so when I'm on call, I use my smartphone." Even though she lives in a rural area and occasionally has trouble with the signal, the system works. And she doesn't miss that "feeling of dread" she used to get when her pager would go off. "I don't know why, but it's not as bad with the phone. Maybe because you also associate it with positive things."

2. Screen the screenings. Family medicine resident Maria Carrow uses a free app called AHRQ ePSS, which allows her to plug in a patient's age, gender, and information about tobacco use, sexual activity, and other behaviors to determine the most important preventive screenings to do during that patient's annual exam. "I use it every day," she says.

3. Access drug formularies. Family physician Kari Rabie says she uses her iPhone to access insurers' drug formularies, frequently the one for Metropolitan Health Plan, to find out which medications they cover. She also uses her phone to look up the cost of drugs for patients who are uninsured and frequently accesses a list that shows which generic drugs are available for \$4 at Target's pharmacies.

4. Google on the fly. Family physician and preceptor Therese Zink was talking to

medical students recently about the case of a patient with urinary incontinence who could no longer afford the drug she had been prescribed. When they started

discussing less-expensive alternatives, Zink pulled out her Droid 2 phone and Googled "urinary incontinence drugs." Zink and her students were able to find cost information and come up with several options for the woman. During a recent noon conference at Methodist Hospital, Maria Carrow says one of the attending physicians was talking about a patient with peripheral neuropathy. "He asked if we knew the mnemonic for working up such a patient. We all looked at each other knowing that we had learned it in medical school, but none of us could remember the answer. He pulled out his smartphone and Googled it: It's DANG THERAPIST. It was great that he had that at his fingertips to aid in teaching," she says.

5. Check a patient's record. Physicians at Mayo Clinic can access their patients' electronic health records using their phones. Anesthesiologist and pain medicine specialist Jason Eldrige uses a mobile version of Mayo's homegrown Synthesis software to remotely and securely access his patients' records. He can review a patient's medical history and vitals; check to see which drugs they are taking; look up lab values; access CT, MRI, and X-ray images; and create notes of his own. Eldrige says accessing the system from his iPhone is sometimes faster than using one of Mayo's many workstations. Infectious disease specialist Peter Bornstein says HealthEast's hospitals use an EHR system from McKesson that has a portal for the iPhone. Although he can't enter information into a patient's record using the phone, he can see consultation notes, lab results, the patient's medical history and physical exam findings, and discharge summaries. Psychiatry resident Rosei Skipper says she uses her iPhone to access patients' medical records before walking into the exam room. "I can talk to them, rather than spend time logging onto the computer in the room and looking back to see what was said about their imaging and test results," she says.

6. Identify drugs and determine dosages. Family physician Amy Keppel says she finds her Droid-powered phone especially helpful when she needs information about drugs, dosages, contraindications, and interactions. With the Epocrates app, "if you look up a drug and it says, for example, .5 mg to 1 mg per kilo per day and you click on that, it sends you to a dosing calculator. You can then enter the strength of the solution of an antibiotic, for example, and the weight of a pediatric patient, and it will calculate the amount you should give them." Keppel says she also likes the fact that she can use the Epocrates app to look up drugs by class when a patient can't remember the name of the drug he or she is taking. Peter Bornstein says he finds Epocrates' pill identification function useful, especially when a patient knows he or she is taking a certain medication but doesn't remember the dosage. Through the Epocrates app, he can pull up pictures of the pill in different shapes and sizes and have the patient show him which one they're taking.

Creating an App

As an integrative medicine physician at Mayo Clinic, Amit Sood, M.D., works with everyone from executives who need to learn to relax to stage IV cancer patients who are coping with pain and others with stress-related conditions such as chronic fatigue syndrome, irritable bowel syndrome, fibromyalgia, and chronic backaches. "Most don't have the time to take off three or four days and go to a mountain and learn to meditate," he says.

So in 2006, he created a meditation program that combines images, music, inspirational words, and breathing techniques to help patients learn to focus and relax. The program, Mayo Clinic Meditation, was initially taught by Sood in the clinic and then put onto DVD, so patients could take it with them and use it to reinforce what they learned.

In December 2009, Mayo worked with DoApps Inc., a Rochester app developer, to turn a portion of Sood's program into an app for the iPhone. "Mayo was testing

7. Find the right billing code. Kari Rabie uses her phone to access the ICD-9 app. "I can look up codes and diagnostic guidelines," she says. If she clicks on hypothyroidism, for example, it will provide her with a list of the diagnostic tests for it, general care guidelines and treatment options, and the billing codes for those tests and activities.

8. Track hospitalized patients. Neurologist Alexander Zubkov used HanDbase, a HIPAA-compliant software program, to build a database to track his hospitalized patients. He now uses his iPhone to access that database. ("We can't access our EMR by phone yet," he says.) The database tells him the location of his patients, their diagnoses, and what tests and treatments they're having. It also contains billing information.

9. Reach a colleague quickly. Heather Hamernick says she still uses conventional methods (calling the hospital and having them call or page the doctor and having the doctor call her back) for reaching many consultants, but when she needs to contact her colleagues from residency or some of her partners, she texts them from her

the waters with smartphones and creating apps and thought this program would be a good one to try," Sood says.

iPhone. "I get an instant reply back," she says. Hamernick adds that some of her colleagues have asked that she text them, rather than contact them any other way. Alexander Zubkov recently was brought in to do a stroke evaluation at Fairview

Southdale Hospital, where he practices. "The patient needed to see an interventional radiologist," he says. Prior to having his iPhone, he would have had to page his colleague and wait for the physician to call him back. In this case, he was able to call the physician directly and let him know he was needed in the ER. "That alone probably saved five to 10 minutes, which makes a big difference for a stroke patient," he says.

10. Network with other docs. Kari Rabie says she recently found an iPhone app for Doximity, a social networking site for physicians. Created by the founders of Epocrates, the site allows physicians to connect with colleagues from medical school and residency both professionally and socially. It also provides phone numbers for pharmacies, hospitals, and labs that are open 24/7; helps users find other physicians with similar interests; and allows physicians to send HIPAA-compliant text messages to colleagues (a credential check is required to do this). Rabie, who is new to Doximity, believes it has potential. "If you want to get in touch with another doc, you can find the information there pretty easily," she says.

11. Aid a vacationing patient. Pediatrician Gary Snead says he allows the families of some patients with complex needs to text him if they have problems or questions. Sometimes, they even send him pictures over the phone, which can help him assess a situation. Last summer, he received a text from the parent of a patient who had developed a rash while vacationing at their cabin. Not knowing whether it needed attention, the parent sent Snead a photo of the rash, which he quickly determined was pityriasis rosea. "I was able to tell them what it was, that there was really no treatment for it, and that it would just take time to go away. The family didn't have to go to the ER or come home to have it checked out, and sure enough it cleared up just the way we predicted it would."

Is the iPad the Next Big Thing?

Alexander Zubkov, M.D., a neurologist who practices at Fairview Southdale Hospital, is a self-described technophile. Among the gadgets he's carried with him over the years are a Sony Clie, several Palm Treos, a Windows phone, and now an iPhone and an iPad. "Between the iPhone and the iPad, I hardly ever use the computer to look up stuff," he says.

Zubkov says he doesn't use his iPad in clinical practice much. But he expects that will change soon. He sees the iPad 2, which was introduced in March and has a built-in camera, as a great tool for videoconferencing with patients and other providers.

Others see it having greater potential for patient education than the smartphone because of its larger screen. Amit Sood, M.D., a Mayo Clinic integrative medicine physician, has two iPads in his family. He believes both physicians and patients will rely increasingly on such devices. "I think they have tremendous potential. They may not replace the stethoscope, but they can definitely enhance our efficiency," he says.

12. Tame your schedule. Jason Eldrige says his smartphone helps him keep track of meetings, professional and clinical obligations, and his call schedule. "We have the ability to sync our Outlook calendars so we can see our clinical assignments for the day," he says, explaining that he might have two or three different assignments each day and that those can frequently change. "It gets to be very complicated," he says. "I joke with my secretary that if I didn't have my Outlook calendar, I would be lost on any given day."

13. Determine risk for stroke or heart disease. Maria Carrow says she uses a free app called Calculate by QxMD for her Droid 2 phone to help her patients understand their risk for stroke or heart disease. She enters information about the patient's age, smoking status, LDL cholesterol level, exercise habits, family history, and other risk factors into the app, which does the calculation. She then discusses the results with the patient and explains what he or she can do to lower their risk of disease. "Patients respond well," Carrow says. "It's visual, and they know I'm not just pulling this out of thin air."

14. Find information on unusual diseases. As a family physician who encounters a wide variety of conditions, Amy Keppel says she likes being able to access information about diseases and their treatments using

the Epocrates app. "Say someone has dengue fever, which was recently found in Florida. You can look it up and it will tell you basic information, tests you should run, treatment options, and follow up you should do," she says. "This is especially helpful in family medicine, where you sometimes encounter diseases you don't see often, and you want to make sure you've covered all the bases." She also likes the fact that Epocrates' disease and drug sections are

cross-referenced.

15. Ask a question in Spanish. Pediatrician Gary Snead recently found a free app called the Emergency Medical Spanish Guide for his Android phone. The guide has preloaded English and Spanish phrases that help medical personnel who don't speak Spanish quickly elicit "yes" and "no" answers to more than 250 questions about a patient's medical history, pain, medications, and physical symptoms. "You pick a phrase, and it speaks it out loud in Spanish," he says. Although the app is no substitute for a qualified interpreter, Snead says it can help when working with Spanish speakers who know some English.

16. Spot colorblindness. Gary Snead uses a free app (the Color Blindness Test by JP TOMATO) to quickly screen teens for colorblindness. "Before I found this, I would have to send them to our lab and then hope they could find the one hard copy of the test that we had," he says, explaining that colorblindness isn't something that is often tested for. Now, he can do the test using the screen on his phone to quickly determine whether a young person may have a problem with color deficiency.

17. Earn CME credit. Amy Keppel uses her Epocrates app to download *The Medical Letter* to her smartphone. She says the *Letter's* expert reviewers provide summaries of studies, describe what they think the limitations are, and recommend how to interpret them. "They're not afraid to say it if they don't think a new drug is any better than an old one," she says. Physicians can earn CME credit by reading the articles and answering questions. Keppel gets an email reminder on her phone when the new issue is available. She then gets a message letting her know when the test is ready. If she chooses, she can take the test on her smartphone to earn credit.

18. Check for a hearing problem. Gary Snead saw clinical promise in a dog whistle app his son was using to train their pooch. The free app, called the Dog Whistler (Mobeezio), has frequency settings that start at ranges dogs can hear well but humans cannot and drop to those that can be heard by humans. "I can quickly use it when a parent says 'I'm not sure my toddler can hear well,'" he says. He holds the phone up to the child's ears and adjusts the volume and frequency to quickly determine whether he or she might need further testing.

Calling Patients

Many physicians interviewed for this story expressed concern about using their smartphones to call patients, as their personal phone number would show up on the patient's caller ID. Alexander Zubkov, M.D., a neurologist who practices at Fairview Southdale Hospital, says he has found a way around this by using Google Voice. It routes his calls through a central number, so he can call or text patients without having his private number show up.

19. Hear a heart murmur. Heather Hamernick says she occasionally refers to an app called iMurmur (\$4.99) that plays recordings of more than 20 types of heart murmurs. The sounds are recordings from real patients. "I can match up what I'm hearing in the patient with what I'm hearing on the app," she says.

20. Get medical news. Rosei Skipper uses her smartphone to get updates on the latest medical news. In addition to using the *New England Journal of Medicine's* app to read summaries of what's in the current issue, she uses the app for MedPage Today, a service of the University of Pennsylvania School of Medicine, to listen to free podcasts about studies that have

come out and reports from medical conferences.

21. Determine a due date. Heather Hamernick says she especially likes the \$1.99 Perfect OB Wheel app for her iPhone. "You can type in the date of the last period and find out how far along a patient is. When a patient has an ultrasound, you can determine how far along they are on that date and calculate their due date." She says she finds the app to be more precise than paper OB wheels.

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22. Take pictures. Pathologist Stuart Cameron says he uses the camera on his iPhone to take pictures of gross or microscopic pathology specimens. "I use them for personal reference or I can show them to a colleague and get their unofficial opinion of what they think they're seeing," he says of the images.

23. View radiologic images. Jason Eldrige reviews MRIs every day. Now, he can pull up an MRI and scroll through the axial and sagittal views on his iPhone. He says that although it is

small, the screen of the current generation iPhone has such high resolution that it provides a good view of images. "The mobile device doesn't replace dedicated devices with larger screens, but it is portable. I don't have to be onsite or on a computer and have to log on to access them. And that's important for patients who need answers right away."

24. **Dictate notes.** Jason Eldrige says he uses his iPhone to dictate notes into his patients' electronic health records. Because he always has his phone with him, he finds he can squeeze in dictation whenever he's in a private, secure location.

Update your clinic's Facebook page. Kari Rabie created a Facebook page for the Native American Community Clinic, where she practices. She uses her phone to update the page. She posts reminders about deadlines to help patients on public programs maintain their insurance coverage, tips for staying healthy, and notices about events. **MM**

Kim Kiser is associate editor of *Minnesota Medicine*.



**Are you a physician who has a Smart Phone?
If so, how are you using it in your practice?**

Wojtek K SmartPhone 4/5/2011 10:24 PM

I love QuantiaMD <http://secure.quantiamd.com/home?u=yxbsewnh> on my phone (available on android, blackberry, and iphone). It is great for mini-lectures, videos, and case presentations on various topics. I like having quick morning reports on your phone whenever you have a few minutes. Submitted By: Wojt

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